

GOOSE CREEK STATE PARK AQUATIC INVENTORY

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GOOSE CREEK STATE PARK AQUATIC INVENTORY



Upper Goose Creek



Pamlico River

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Goose Creek State Park Aquatic Inventory

Introduction

Goose Creek State Park is located in Beaufort County, on the north side of the Pamlico River, and encompasses 1,208 acres. Before the land became a park, the area was used for commercial fishing, timber production, and subsistence farming. Then, lumber companies began to procure large amounts of acreage and logging became the primary industry in the area. Evidence of all of these activities still remain in the park. A group of concerned local citizens appealed to the Division of State Parks to ask that they explore the area for possible state park sites. A site was found and negotiations began to allow purchase of the land. The necessary land was purchased and in September 1974 Goose Creek State Park was opened to the public.

The main waterways of Goose Creek State Park are Upper Goose Creek and the Pamlico River. The headwaters of Upper Goose Creek offer a freshwater environment that turns brackish as it opens into the Pamlico River, in which there are higher salinity levels. It is also interesting to note that the water level of Upper Goose Creek is dependent on the tide. There is also the low oxygen/higher acidity environment of the unnamed swamp that borders the park entrance road and extends well into the park lands. These areas provide the tremendous habitat diversity of this park.

The purpose of this project was to survey for aquatic species, including snails, mussels, sphaeriid clams, crayfish, and fish. Our inventory included Upper Goose Creek and associated waterways. Figure 1 details the localities of all stations surveyed. The following sections provide information on the species in the above taxa documented at each site in the survey area.

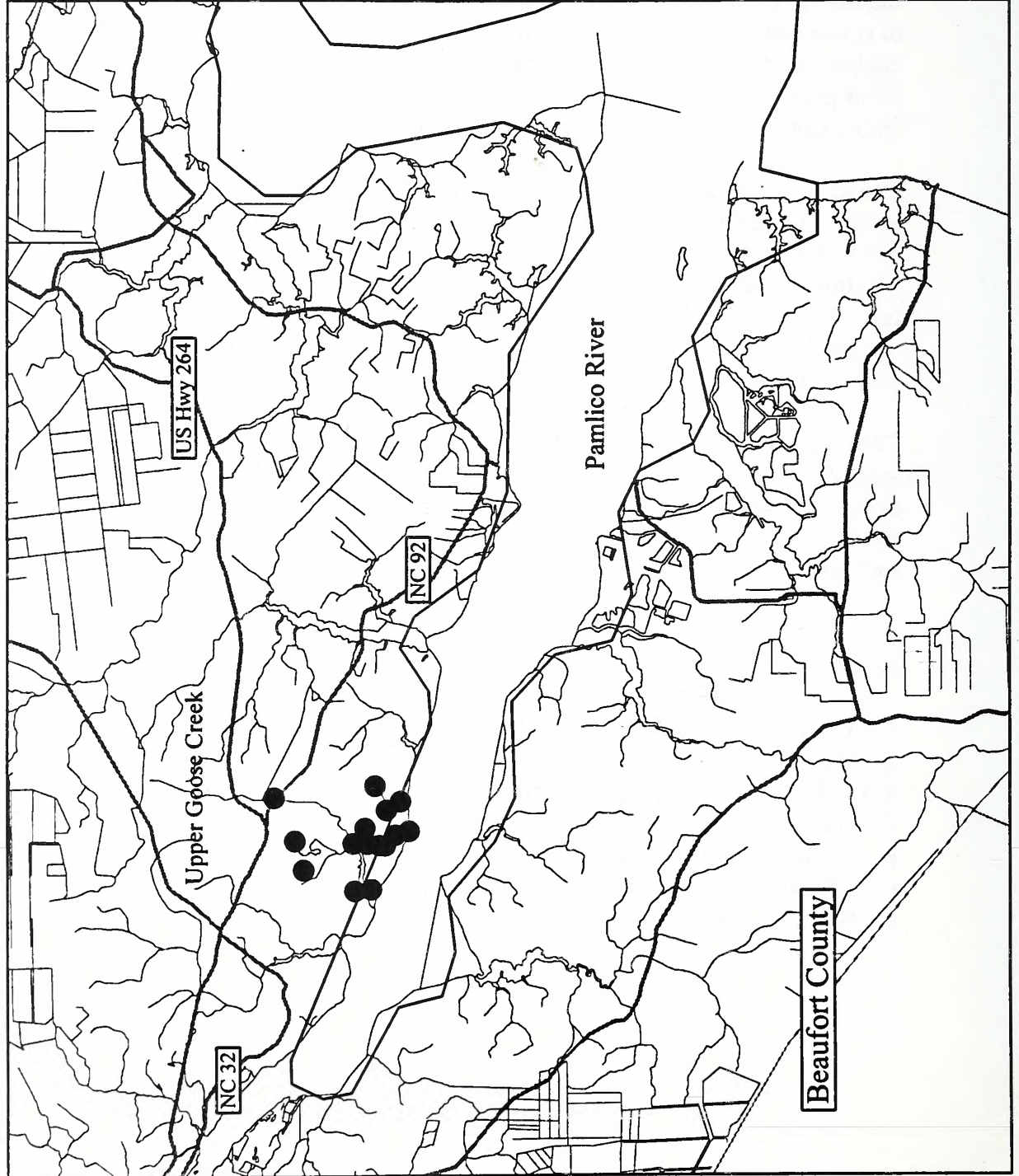
Acknowledgments

The completion of this project would not have been possible without the invaluable assistance of the following people: John M. Alderman, Art Bogan, Alvin Braswell, Alan R. Clark, John E. Cooper, Jay B. Greenwood, Tom Henson, Judith A. Johnson, Andrew H. McDaniel, Jr., Chris McGrath, Louis P. Polletta, Danny Smith, Wayne C. Starnes, Ken R. Taylor, Randall C. Wilson, Melissa R. Wood, and Mara Savacool Zimmerman. I would also like to thank the state park staff and the landowners who allowed us to work on their properties.

Gabriela B. Mottes

GOOSE CREEK STATE PARK AQUATIC INVENTORY

Figure 1.



Aquatic Snails

Introduction

There are approximately 500 species of aquatic snails currently recognized in North America. These 500 species are divided into 78 genera and 15 families (Burch 1989). In North Carolina, there are approximately 52 species representing 8 families (Adams 1990).

Snails are grouped into one of two subclasses. Prosobranch snails are gill-breathing and have an operculum, which is a calcareous plate that closes the aperture when the snail withdraws into its shell. Pulmonate snails are lung-breathing and do not have an operculum to seal their aperture (Burch 1989).

These animals graze on algae and other microscopic organisms using radular teeth to grind food to an appropriate size for consumption. Snails are an essential part of aquatic ecosystems, as well as indicators of water quality. However, they are typically overlooked. The lack of information and knowledge of snails can be attributed, in part, to their minute size, perceived lack of activity, cryptic habits, and difficulty in identification.

Methods

Study areas for this project included the aquatic habitats associated with Goose Creek State Park (Fig. 1, Introduction Section). Most habitats can be described as no flow to slow flow, with the exception of the Pamlico River. The unnamed swamp was ankle to shin deep in most areas and contained a considerable amount of leaf and woody debris and aquatic vegetation, including duckweed. The predominant habitat within the creeks was pool with only a few runs. There were no riffle areas. The substrate of the Pamlico River was sand, unlike the mud/leaf and woody debris substrate of the creeks and unnamed swamp. All areas had a good hardwood/pine buffer with occasional cypress. The pH ranged from 5.9 - 9.0. The salinity ranged from 3 - 8. The dissolved oxygen in the unnamed swamp was less than 1 ppm.

Snails were collected in the Upper Goose Creek Subbasin (Fig. 1). Various collecting techniques were utilized including visual and tactile searches. Due to the cryptic habits of some snail species, it was necessary to sift and dredge the substrate. All available habitats were sampled. Snails were preserved and stored in 70% ethanol.

Snails and limpet snails were identified by using Burch (1989) and Basch (1963). Expected distributions and the following characteristics were used to identify the specimens: presence/absence of an operculum, direction of coiling, shell size, shape, color and thickness, texture of the shell, placement of apex, shape and number of the

whorls, and the shape of the apertural lip. With the acquisition of additional information, identifications may be subject to change.

Results and Discussion

Snails were located at two of the sites surveyed (Fig. 1). At least two species, representing two families and one subclass, were found within the waterways of Goose Creek State Park (Table 1).

Both *Physella* sp. and *Menetus dilatatus* (Gould, 1841) were found in the aquatic vegetation of the unnamed swamp.

Diversity and abundances of snails in the waterways of Goose Creek State Park are poor. The fact that the subbasin water and salinity levels fluctuate with the tide could explain these poor values.

Resources

Adams, W. F. (ed). 1990. *A report on the conservation status of North Carolina's Freshwater and Terrestrial Molluscan fauna*. The Scientific Council on Freshwater and Terrestrial Mollusks. 246 pp.

Basch, P. F. 1963. A review of the recent freshwater limpet snails of North America (Mollusca: Pulmonata). *Bulletin: Museum of Comparative Zoology*, Harvard University. 129(8): 399-461.

Burch, J. B. 1989. *North American Freshwater Snails*. Malacological Publications. Hamburg, MI. 365 pp.

Turgeon, D. D., et. al. 1988. *Common and Scientific Names of Aquatic Invertebrates from the United States and Canada: Mollusks*. American Fisheries Society. Bethesda, MA. 277 pp + figures.

Table 1. Snails found in the waterways associated with Goose Creek State Park

Pulmonata

Physidae

Physella sp.

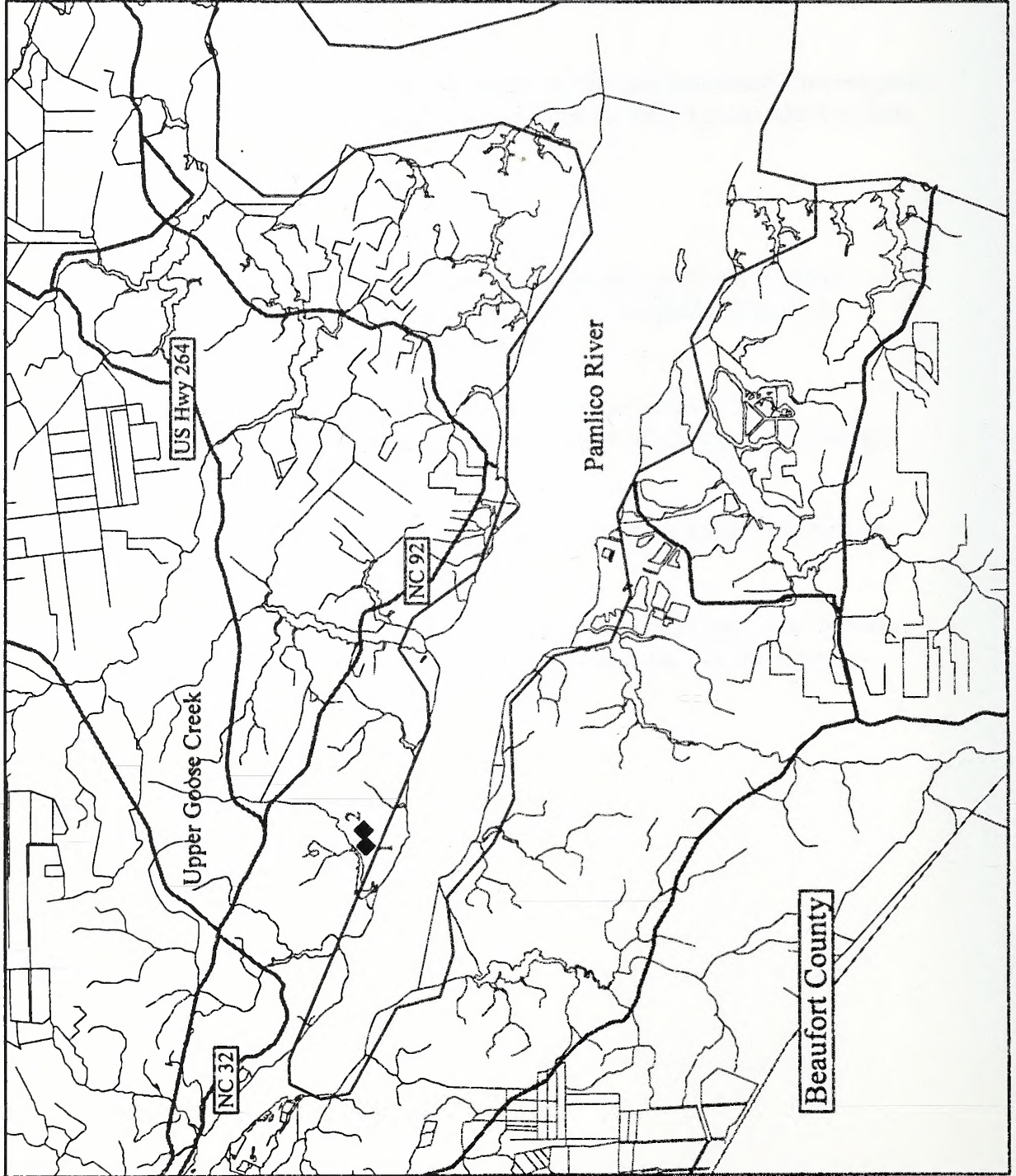
Planorbidae

Menetus dilatatus (Gould, 1841)

Bugle sprite

GOOSE CREEK STATE PARK AQUATIC SNAIL SPECIES INVENTORY

Figure 1.



Station No.
970529.3
970529.5
970617.1

Dot No.
1
2

Miles
0 2 4

Table 2. Snails found in Goose Creek State Park and associated waterways

<u>Station</u> <u>No.</u>	<u>Scientific Name</u>	<u>Waterway</u>	<u>Common</u> <u>Locality</u>	<u>County</u>	<u>Date</u>	<u>No.</u>	<u>Identified</u> <u>By</u>
970529.3	<i>Menetus dilatatus</i>	Roadside swamp	Park rd. N of Ivey Gut Tr. parking, GCSP	Beaufort	29 May 1997	12	G.B. Mottesi
970529.3	<i>Physella</i> sp.	Roadside swamp	Park rd. N of Ivey Gut Tr. parking, GCSP	Beaufort	29 May 1997	3	G.B. Mottesi
970529.5	<i>Physella</i> sp.	Unnamed swamp	Off boardwalk near ed. center, GCSP	Beaufort	29 May 1997	6	G.B. Mottesi
970617.1	<i>Physella</i> sp.	Unnamed swamp	Off boardwalk near ed. center, GCSP	Beaufort	17 June 1997	6	G.B. Mottesi

Freshwater Mussels and Sphaeriid Clams

Introduction

Freshwater mussels are in the Class Bivalvia. As the name implies, the mussel is separated into right and left shell-secreting centers. The shell itself is a single entity which is divided into right and left portions. Mussels are characterized by having greatly enlarged gills with ciliated filaments for filter feeding. They are an integral part of many aquatic ecosystems. They provide nutrients for insects and other invertebrates and are a food source for other organisms. Due to the fact that they are filter feeders, they are excellent indicators of water quality.

There are approximately 300 species and subspecies of freshwater mussels in the United States. The greatest diversity of these mussels occurs in the Southeast. Roughly 70 species can be found in North Carolina. Unfortunately, approximately half are state listed as Endangered, Threatened, or species of Special Concern (Adams 1990). It appears that the mussel fauna of the United States is in danger of extinction (Williams, et al. 1992). Therefore, it is necessary that we determine the status and distribution of these organisms so that proper management techniques can be applied.

Sphaeriid clams, like freshwater mussels, are in the Class Bivalvia and are filter feeders. The members of this family are considered the pea, pill, nut or fingernail clams. Due to their well-developed mechanism of passive dispersal and adaptability, sphaeriid clams can be found in almost any body of freshwater. Therefore, their distributions are considered truly cosmopolitan (Branson 1988). In spite of their cosmopolitan distribution, not much is known about sphaeriid clams. They are represented in North America by 38 species of the family Sphaeriidae. In North Carolina, there are approximately 13 species of sphaeriid clams (Adams 1990).

Methods, Results, and Discussion

Study areas for this project included the aquatic habitats associated with the Upper Goose Creek Subbasin (Fig. 1, Introduction Section). Most habitats can be described as no flow to slow flow, with the exception of the Pamlico River. The unnamed swamp was ankle to shin deep in most areas and contained a considerable amount of leaf and woody debris and aquatic vegetation, including duckweed. The predominant habitat within the creeks was pool with only a few runs. There were no riffle areas. The substrate of the Pamlico River was sand, unlike the mud/leaf and woody debris substrate of the creeks and unnamed swamp. All areas had a good hardwood/pine buffer with occasional cypress. The pH ranged from 5.9 - 9.0. The salinity ranged from 3 - 8. The dissolved oxygen in the unnamed swamp was less than 1 ppm.

There were no mussels or sphaeriid clams found in the Upper Goose Creek Subbasin. The fact that the subbasin water and salinity levels fluctuate with the tide could be a possible reason as to why there are no mussels or sphaeriid clams.

Resources

- Adams, W. F. (ed). 1990. *A report on the conservation status of North Carolina's Freshwater and Terrestrial Molluscan fauna*. The Scientific Council on Freshwater and Terrestrial Mollusks. 246 pp.
- Burch, J. B. 1975. *Freshwater Sphaeriacean Clams (Mollusca: Pelecypoda) of North America*. Museum and Department of Zoology, University of Michigan. Ann Arbor, MI. 96 pp.
- Branson, B. A. 1988. The Sphaeriacean Clams (Mollusca: Bivalvia) of Kentucky. *Transactions of the Kentucky Academy of Science*. 49(1-2): 8-14.
- Johnson, R. I. 1970. *The Systematics and Zoogeography of the Unionidae (Mollusca: Bivalvia) of the Southern Atlantic Slope Region*. Harvard University. Cambridge, MS. 140(6): 263-450.
- Williams, J. D., M. L. Warren, Jr., K. S. Cummings, J. L. Harris, and R. J. Neves. 1992. Conservation status of freshwater mussels of the United States and Canada. American Fisheries Society. Bethesda, MA. *Fisheries* 18(9): 6-22.

Crayfish

Introduction

There are currently 338 recognized species of crayfish in the United States and Canada, the greatest diversity of which reside in the Southeast (Taylor et al. 1996). In North Carolina, there are 30 native and 2 introduced species of crayfish (Cooper, pers. comm., 1998). Of these 32 species, nine are listed as significantly rare by the North Carolina Natural Heritage Program (LeGrand and Hall 1995).

Crayfish play a significant role in aquatic ecosystems by representing a large percentage of the biomass in lentic and lotic waters. They are gill breathing organisms and require an aquatic habitat to absorb oxygen from the water. In accordance with habitat preferences, crayfish are classified as either non-burrowers or burrowers. Non-burrowers spend their entire life in the stream bed while burrowers excavate tunnels in roadside ditches, wet pastures, and flood plains (Taylor et al. 1996). Different species of burrowers spend different amounts of their life cycle in subterranean domains.

In the family Cambaridae (which includes all North Carolina species), there are two designations for adult male crayfish: Form I and Form II. Throughout their lives, adult males cycle between these forms. Morphologically both forms are similar except in the texture and shape of the first pleopod (the sexual organ). Form I males are able to sexually reproduce while Form II males are not. Unlike adult males, adult females do not cycle between morphological forms and once they reach adulthood, they can sexually reproduce.

Methods

Study areas for this project included the aquatic habitats associated with Goose Creek State Park (Fig. 1, Introduction Section). Most habitats can be described as no flow to slow flow, with the exception of the Pamlico River. The unnamed swamp was ankle to shin deep in most areas and contained a considerable amount of leaf and woody debris and aquatic vegetation, including duckweed. The predominant habitat within the creeks was pool with only a few runs. There were no riffle areas. The substrate of the Pamlico River was sand, unlike the mud/leaf and woody debris substrate of the creeks and unnamed swamp. All areas had a good hardwood/pine buffer with occasional cypress. The pH ranged from 5.9 - 9.0. The salinity ranged from 3 - 8. The dissolved oxygen in the unnamed swamp was less than 1 ppm.

Crayfish were collected in the Upper Goose Creek Subbasin (Fig. 1). Collecting techniques included the use of dip nets, 6' x 10' minnow seine, and pit fall traps. Specimens were preserved and stored in 70% ethanol.

The following sources were consulted for identification: Cooper (1998), Hobbs (1989), Hobbs (1991), and Page (1985). Dr. John Cooper, NC Museum of Natural Sciences, and Mara Savacool Zimmerman also provided invaluable assistance. With additional information, the present identifications may be subject to change.

The key feature used to differentiate crayfish species from one another is the morphology and structure of the first pleopod pair of the Form I male. Form II males, juvenile males, and females can be recognized by their carapace, chelae, rostrum shape, and body coloration.

Specimens were recorded as Form I male (MI), Form II male (MII), juvenile male (jM), adult female (F), and juvenile female (jF). Adult versus juvenile specimens were distinguished based on size. Carapace length was measured from the tip of the rostrum to the posterior carapace edge (Page 1985).

Results and Discussion

Figure 1 details the localities of the ten stations where crayfish were found. Two species of crayfish, one crab, and one shrimp species were detected within the area surveyed (Table 1).

Procambarus (O.) acutus acutus (Girard, 1852) was found in the swamp and in run and pool habitats with sandy substrate, woody debris, and aquatic vegetation. A total of 42 specimens were collected (7MI, 13MII, 2jM, 17F, 3jF). Carapace length ranged from 18.05 to 44.30 mm. Form I males were collected on 30 May and 18 June 1997.

Fallicambarus (C.) fodiens (Cottle, 1863) was collected from pitfall traps set in the swamp area and from a roadside ditch. These areas had woody debris and leaf litter and abundant aquatic vegetation. A total of 4 specimens and parts were collected (1MII, 2jM, 1F). Carapace length ranged from 17.40 to 26.00 mm.

Callinectes sapidus Rathbuni, 1896, the Common blue crab, and *Palaemonetes pugio* Holthuis, 1949, the Grass shrimp, were collected from the Pamlico River and Flatty Creek. These areas had sand substrate with minimal leaf litter and woody debris.

There is a fair diversity and abundance of crayfish in the waterways associated with Goose Creek State Park (Table 2).

Resources

Cooper, J. E. 1998. Personal communication.

- Cooper, J. E. 1998. Unpublished preliminary eclectic keys to the native crayfishes of North Carolina. I. Coastal Plain and Piedmont Plateau, East of the Yadkin-Pee River Basin.
- Cooper, J. E. and A. L. Braswell. 1995. Observations on North Carolina crayfishes. (Decapoda: Cambaridae). *Brimleyana*. 22: 87-132.
- Hobbs, H. H., Jr. 1991. Unpublished key to North Carolina crayfish.
- Hobbs, H. H., Jr. 1989. An illustrated checklist of the American crayfishes (Decapoda: Astacidae, Cambaridae, and Parastacidae). *Smithsonian Contributions to Zoology*. 480: 236 p. Figs: 1-379.
- LeGrand, H. E., Jr. and S. P. Hall. 1995. *Natural Heritage Program list of the rare animal species of North Carolina*. North Carolina Natural Heritage Program. 67 pp.
- Page, L. M. 1985. The crayfishes and shrimps (Decapoda) of Illinois. *Illinois Natural History Survey Bulletin*. 33(4): 335-347.
- Taylor, C. A., M. L. Warren, Jr., J. F. Fitzpatrick, Jr., H. H. Hobbs III, R. F. Jezerinac, W. L. Pflieger, and H. W. Robison. 1996. Conservation status of crayfishes of the United States and Canada. *Fisheries*. 21(4): 25-37.

Table 1. Crayfish and other Crustacea found in the waterways associated with Goose Creek State Park

Portunidae

Callinectes sapidus Rathbuni, 1896

Common blue crab

Palaemonidae

Palaemonetes pugio Holthuis, 1949

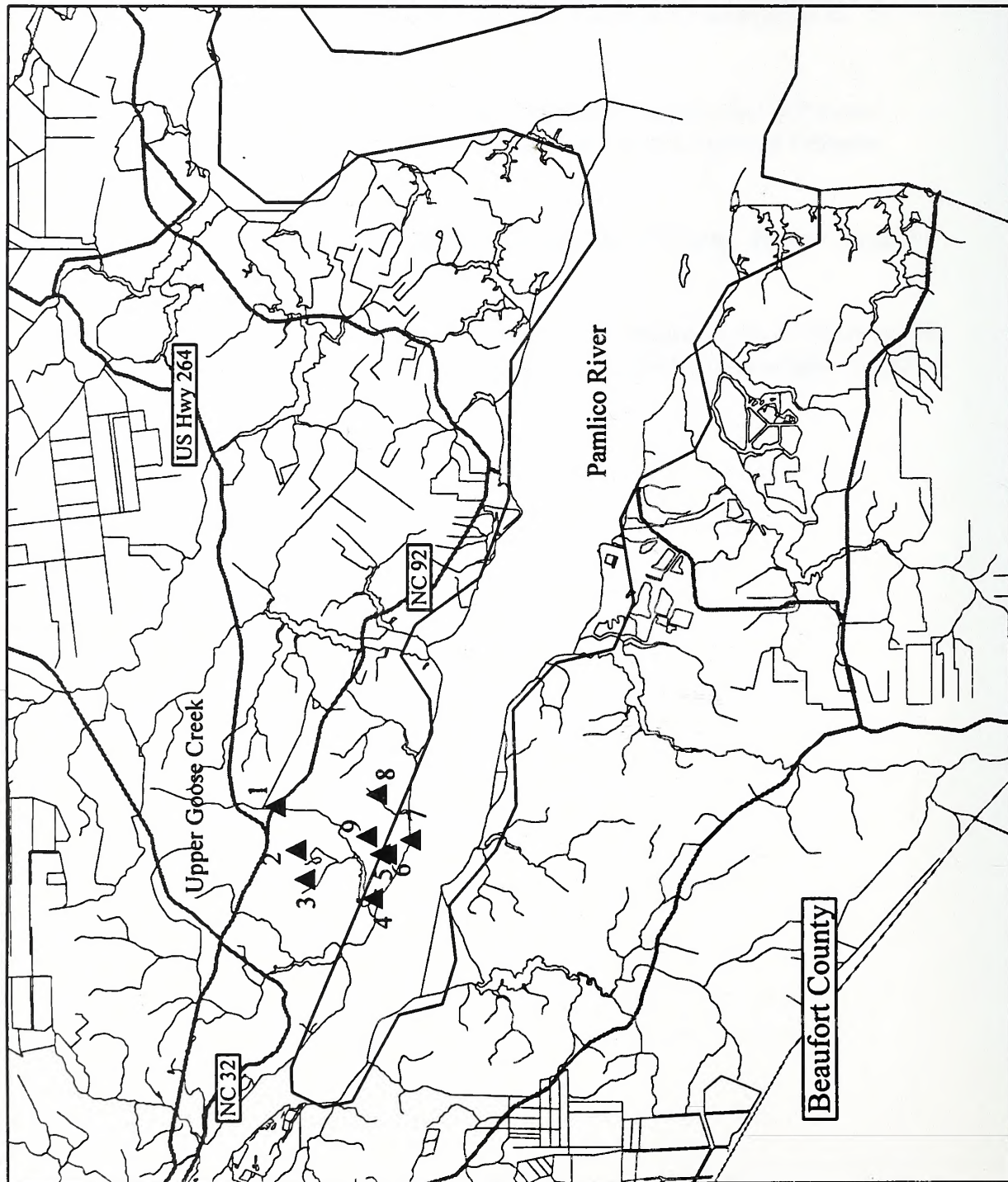
Grass shrimp

Cambaridae

Fallicambarus (Creaserinus) fodiens (Cottle, 1863)

Procambarus (Ortmannicus) acutus acutus (Girard, 1852)

GOOSE CREEK STATE PARK CRAYFISH SPECIES INVENTORY



Dot No.
1
2
3
4
5
6
7
8
9

Station No.
970530.3
970530.1
970530.2
970616.4
970529.2
970529.4
970616.3
970618.1
970529.5
970701.1



Miles
0 2 4

Figure 1.

Table 2. Crayfish and other Crustacea found in Goose Creek State Park and associated waterways

Station No.	Scientific Name	Waterway	Common Locality	County	Date	Number/Sex	Identified By
970529.2	<i>Fallicambarus (C.) fodiens</i>	Roadside ditch	Park entrance road, GCSP	Beaufort	29 May 1997	IMII	M.E. Savacool
970529.2	<i>Procambarus (O.) acutus acutus</i>	Roadside ditch	Park entrance road, GCSP	Beaufort	29 May 1997	IMII, 1F	M.E. Savacool
970529.4	<i>Procambarus (O.) acutus acutus</i>	Roadside ditch	Park ent. rd. S of rd. to tent sites, GCSP	Beaufort	29 May 1997	1F	M.E. Savacool
970529.5	<i>Fallicambarus (C.) fodiens</i>	Unnamed swamp	Off boardwalk near ed. center, GCSP	Beaufort	29 May 1997	1JM	M.E. Savacool
970530.1	<i>Procambarus (O.) acutus acutus</i>	trib. to Upper Goose Cr.	SR 1332 (close to SR 1334)	Beaufort	30 May 1997	IMII, 1F, 1jF	M.E. Savacool
970530.2	<i>Procambarus (O.) acutus acutus</i>	trib. to Upper Goose Cr.	SR 1332 (close to SR 1365)	Beaufort	30 May 1997	IM1, 3MII, 6F, 1jF	M.E. Savacool
970530.3	<i>Procambarus (O.) acutus acutus</i>	Upper Goose Creek	NC 92	Beaufort	30 May 1997	2M1, 7MII, 2JM, 5F, 1jF	M.E. Savacool
970616.3	<i>Callinectes sapidus</i>	Pamlico River	near Ragged Pt. Tr. boardwalk, GCSP	Beaufort	16 June 1997	1, parts	J.E. Cooper, G.B. Mottesi
970616.3	<i>Palaemonetes pugio</i>	Pamlico River	near Ragged Pt. Tr. boardwalk, GCSP	Beaufort	16 June 1997	12	J.E. Cooper, G.B. Mottesi
970616.4	<i>Callinectes sapidus</i>	Flatty Creek	confl. w/Pamlico River, GCSP	Beaufort	16 June 1997	2	J.E. Cooper, G.B. Mottesi
970618.1	<i>Procambarus (O.) acutus acutus</i>	Mallard Creek	SR 1334	Beaufort	18 June 1997	4M1, 1MII, 3F	M.E. Savacool
970701.1	<i>Fallicambarus (C.) fodiens</i>	Unnamed swamp	Off boardwalk near ed. center, GCSP	Beaufort	1 July 1997	1JM, 1F, parts	J.E. Cooper, G.B. Mottesi

Freshwater Fishes

Introduction

Approximately 790 fish species are believed to occur in the freshwaters of the United States and Canada (Page & Burr 1991). More than 225 species can be found in North Carolina (Menhinick 1991). This unusually rich and variable fish fauna is due to a great diversity of habitats found within the state and to different zoogeographic distribution patterns of various species. Many game species, several bait and forage species, and at least one aquarium species have become established in the water of North Carolina (Menhinick 1991).

Unfortunately, almost one quarter of the fish occurring in North Carolina are state listed as Endangered, Threatened, or Special Concern species. This is of concern since fish are important components of aquatic ecosystems; they are indicators of water quality; and many species are a source of recreation for the state's citizens. Therefore, it is important that we determine their status/distributions and apply proper conservation techniques where necessary.

Methods

Study areas for this project included the aquatic habitats associated with Goose Creek State Park (Fig. 1, Introduction Section). Most habitats can be described as no flow to slow flow, with the exception of the Pamlico River. The unnamed swamp was ankle to shin deep in most areas and contained a considerable amount of leaf and woody debris and aquatic vegetation, including duckweed. The predominant habitat within the creeks was pool with only a few runs. There were no riffle areas. The substrate of the Pamlico River was sand, unlike the mud/leaf and woody debris substrate of the creeks and unnamed swamp. All areas had a good hardwood/pine buffer with occasional cypress. The pH ranged from 5.9 - 9.0. The salinity ranged from 3 - 8. The dissolved oxygen in the unnamed swamp was less than 1 ppm.

Fish were collected in the Upper Goose Creek Subbasin and the Pamlico River (Fig. 1). Collecting techniques included the use of a 6' x 10' minnow seine, a 6' x 60' minnow bag seine, and dip nets. Different techniques of seining, such as kicking, setting and dragging, were utilized according to the habitat. Specimens were fixed in 10% formalin and preserved in 70% ethanol. Specimens not collected were returned unharmed.

The following sources were used as identification tools: Etnier and Starnes (1993), Jenkins and Burkhead (1994), Menhinick (1991), Page and Burr (1991), Robins and Ray (1986), and Rohde, et al. (1994). Some identifications were verified using specimens from the collection of the NC State Museum of Natural Sciences. With the acquisition of additional information, identifications may be subject to change.

Results and Discussion

Figure 1 details the localities of the fifteen stations where fish were found. Twenty-one species of fish representing fifteen families were detected within the area surveyed (Table 1).

Many of the species that we found in the waterways associated with Goose Creek State Park were also found by the park rangers on their yearly survey at the swim beach at Goose Creek (2 mi. from SR 1332). Their efforts involve the use of a 6' x 60' minnow bag seine through a 1 acre area. Following is a list of other species which their survey discovered.

- Atlantic croaker
- Atlantic silverside
- Bay anchovy
- Pinfish
- Pipefish
- Red drum
- Sculpin
- Striped mullet
- White perch

Fish species diversity and abundance are good within the waterways associated with Goose Creek State Park (Table 2). The fresh and brackish waters associated with the park provide habitat for a wide array of species with very diverse habitat requirements. The swamp area also provides the low oxygen/higher acidity environment that some species can flourish in.

Resources

- Etnier, D. A and W. C. Starnes. 1993. *The Fishes of Tennessee*. The University of Tennessee Press. Knoxville, TN. 681 pp.
- Jenkins, R. E. and N. M. Burkhead. 1994. *Freshwater Fishes of Virginia*. American Fisheries Society. Bethesda, MA. 1079 pp.
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- Menhinick, E. F. 1991. *The Freshwater Fishes of North Carolina*. North Carolina Wildlife Resources Commission. Raleigh, NC. 227 pp.

Page, L. M. and B. M. Burr. 1991. *A Field Guide to Freshwater Fishes*. Peterson Field Guide Series. Houghton Mifflin Company. Boston, MA. 432 pp.

Robins, C. R., and G. C. Ray. 1986. *A Field Guide to the Atlantic Coast Fishes*. Peterson Field Guide Series. Houghton Mifflin Company. Boston, MA. 354 pp.

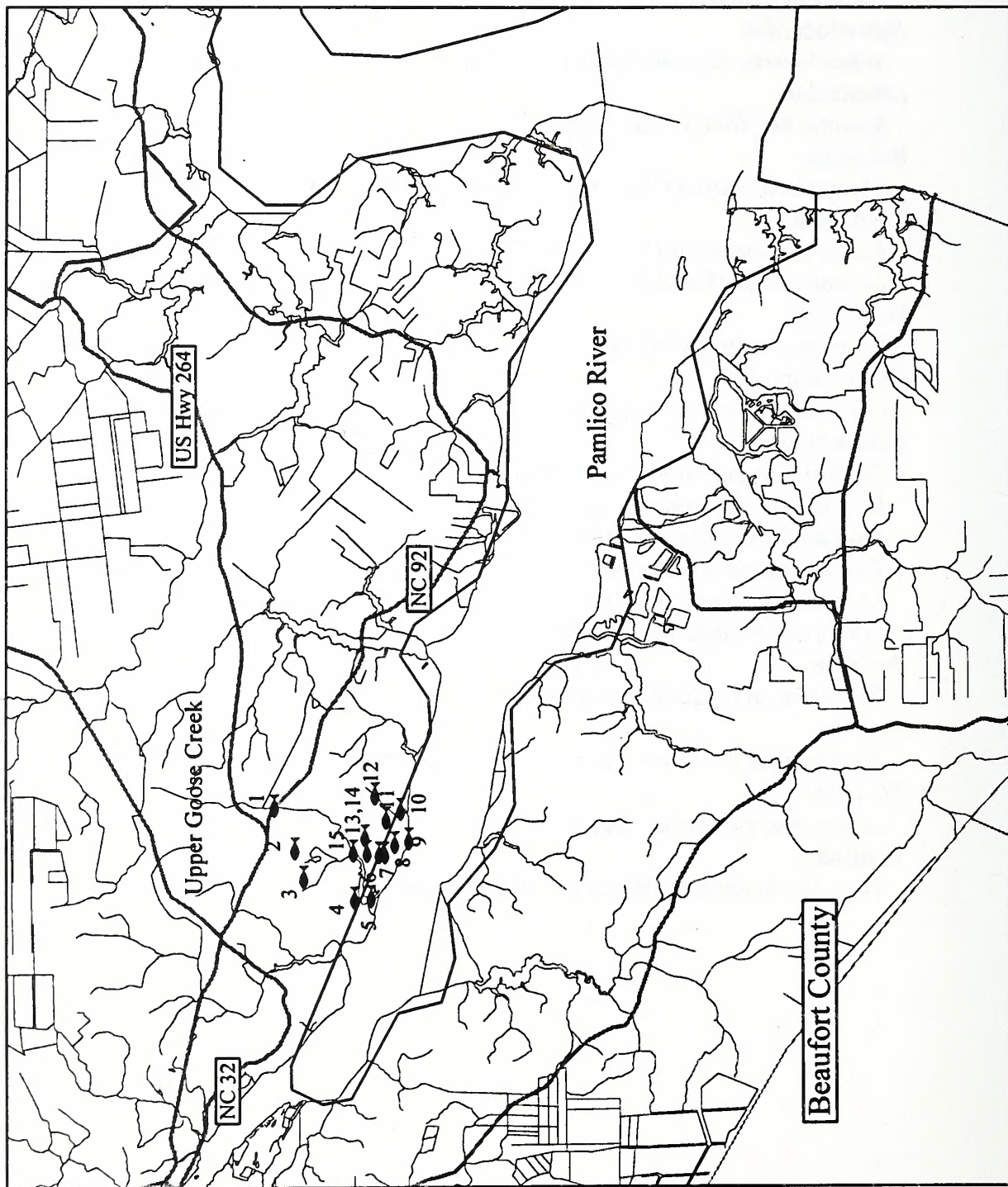
Rohde, F. C., R. G. Arndt, D. G. Lindquist, and J. F. Parnell. 1994. *Freshwater Fishes of the Carolinas, Virginia, Maryland, & Delaware*. The University of North Carolina Press. Chapel Hill, NC. 222 pp.

Table 1. Fish found in the waterways associated with Goose Creek State Park

Anguillidae	
<i>Anguilla rostrata</i> (Lesueur, 1817)	American eel
Ictaluridae	
<i>Ameiurus natalis</i> (Lesueur, 1819)	Yellow bullhead
Esocidae	
<i>Esox americanus</i> Gmelin, 1788	Redfin pickerel
Umbridae	
<i>Umbra pygmaea</i> (DeKay, 1842)	Eastern mudminnow
Aphredoderidae	
<i>Aphredoderus sayanus</i> (Gilliams, 1824)	Pirate perch
Atherinidae	
<i>Menidia beryllina</i> (Cope, 1866)	Inland silverside
Belonidae	
<i>Strongylura marina</i> (Walbaum in Artedi, 1792)	Atlantic needlefish
Fundulidae	
<i>Fundulus diaphanus</i> (Lesuer, 1817)	Banded killifish
<i>Lucania parva</i> (Baird & Girard, 1855)	Rainwater killifish
Poeciliidae	
<i>Gambusia holbrooki</i> Girard, 1859	Eastern mosquitofish
Cyprinodontidae	
<i>Cyprinodon variegatus</i> Lacépède, 1803	Sheephead minnow
Centrarchidae	
<i>Centrarchus macropterus</i> (Lacépède, 1801)	Flier
<i>Enneacanthus gloriosus</i> (Holbrook, 1855)	Bluespotted sunfish
<i>Enneacanthus obesus</i> (Girard, 1854)	Banded sunfish
<i>Lepomis gibbosus</i> (Linnaeus, 1758)	Pumpkinseed sunfish
<i>Lepomis microlophus</i> (Günther, 1859)	Redear sunfish
<i>Micropterus salmoides</i> (Lacépède, 1802)	Largemouth bass
Percidae	
<i>Perca flavescens</i> (Mitchill, 1814)	Yellow perch
Sparidae	
<i>Archosargus probatocephalus</i> (Walbaum in Artedi, 1792)	Sheepshead
Scianidae	
<i>Leiostomus xanthurus</i> Lacépède, 1802	Spot
Achiridae	
<i>Trinectes maculatus</i> (Bloch & Schneider, 1801)	Hogchoker

GOOSE CREEK STATE PARK FISH SPECIES INVENTORY

Figure 1.



Dot No.	Station No.
1	970530.3
2	970530.1
3	970530.2
4	970616.5
5	970616.4
6	970529.4
7	970529.2
8	970529.1
9	970616.3
10	970616.2
11	970616.1
12	970618.1
13	970529.3
14	970529.5
15	970618.2

Miles



Table 2. Fish found in Goose Creek State Park and associated waterways

Station No.	Scientific Name	Waterway	Common Locality	County	Date	No.	Identified By
970529.1	<i>Umbra pygmaea</i>	Roadside ditch	Park rd. near Ragged Pt. Tr. parking, GCSP	Beaufort	29 May 1997	2	G.B. Mottesi
970529.2	<i>Umbra pygmaea</i>	Roadside ditch	Park entrance road, GCSP	Beaufort	29 May 1997	3	G.B. Mottesi
970529.2	<i>Enneacanthus obesus</i>	Roadside ditch	Park entrance road, GCSP	Beaufort	29 May 1997	1	G.B. Mottesi
970529.2	<i>Gambusia holbrooki</i>	Roadside ditch	Park entrance road, GCSP	Beaufort	29 May 1997	abundant	G.B. Mottesi
970529.3	<i>Umbra pygmaea</i>	Roadside swamp	Park rd. N of Ivey Gut Tr. parking, GCSP	Beaufort	29 May 1997	1	G.B. Mottesi
970529.3	<i>Gambusia holbrooki</i>	Roadside swamp	Park rd. N of Ivey Gut Tr. parking, GCSP	Beaufort	29 May 1997	abundant	G.B. Mottesi
970529.4	<i>Umbra pygmaea</i>	Roadside ditch	Park rd. N of Ivey Gut Tr. parking, GCSP	Beaufort	29 May 1997	common	G.B. Mottesi
970529.5	<i>Gambusia holbrooki</i>	Unnamed swamp	Off boardwalk near ed. center, GCSP	Beaufort	29 May 1997	abundant	G.B. Mottesi
970529.5	<i>Umbra pygmaea</i>	Unnamed swamp	Off boardwalk near ed. center, GCSP	Beaufort	29 May 1997	abundant	G.B. Mottesi
970530.1	<i>Umbra pygmaea</i>	trib. to Upper Goose Cr.	SR 1332 (close to SR 1334)	Beaufort	30 May 1997	common	G.B. Mottesi
970530.1	<i>Esox americanus</i>	trib. to Upper Goose Cr.	SR 1332 (close to SR 1334)	Beaufort	30 May 1997	common	G.B. Mottesi
970530.2	<i>Gambusia holbrooki</i>	trib. to Upper Goose Cr.	SR 1332 (close to SR 1365)	Beaufort	30 May 1997	common	G.B. Mottesi
970530.2	<i>Enneacanthus obesus</i>	trib. to Upper Goose Cr.	SR 1332 (close to SR 1365)	Beaufort	30 May 1997	3	G.B. Mottesi
970530.2	<i>Esox americanus</i>	trib. to Upper Goose Cr.	SR 1332 (close to SR 1365)	Beaufort	30 May 1997	1	G.B. Mottesi
970530.2	<i>Centrarchus macropterus</i>	trib. to Upper Goose Cr.	SR 1332 (close to SR 1365)	Beaufort	30 May 1997	1	G.B. Mottesi
970530.2	<i>Aphredoderus sayanus</i>	trib. to Upper Goose Cr.	SR 1332 (close to SR 1365)	Beaufort	30 May 1997	2	G.B. Mottesi
970530.2	<i>Umbra pygmaea</i>	trib. to Upper Goose Cr.	SR 1332 (close to SR 1365)	Beaufort	30 May 1997	common	G.B. Mottesi
970530.3	<i>Esox americanus</i>	Upper Goose Creek	NC 92	Beaufort	30 May 1997	1	G.B. Mottesi
970530.3	<i>Enneacanthus obesus</i>	Upper Goose Creek	NC 92	Beaufort	30 May 1997	2	G.B. Mottesi
970530.3	<i>Lepomis gibbosus</i>	Upper Goose Creek	NC 92	Beaufort	30 May 1997	1	G.B. Mottesi
970530.3	<i>Aphredoderus sayanus</i>	Upper Goose Creek	NC 92	Beaufort	30 May 1997	1	G.B. Mottesi
970530.3	<i>Umbra pygmaea</i>	Upper Goose Creek	NC 92	Beaufort	30 May 1997	1	G.B. Mottesi
970616.1	<i>Anguilla rostrata</i>	Mallard Creek	above confl. w/Pamlico River, GCSP	Beaufort	16 June 1997	2	G.B. Mottesi
970616.1	<i>Gambusia holbrooki</i>	Mallard Creek	above confl. w/Pamlico River, GCSP	Beaufort	16 June 1997	abundant	G.B. Mottesi
970616.2	<i>Lepomis gibbosus</i>	Mallard Creek	above confl. w/Pamlico River, GCSP	Beaufort	16 June 1997	9	G.B. Mottesi
970616.2	<i>Gambusia holbrooki</i>	Mallard Creek	above confl. w/Pamlico River, GCSP	Beaufort	16 June 1997	abundant	G.B. Mottesi
970616.2	<i>Micropterus salmoides</i>	Mallard Creek	above confl. w/Pamlico River, GCSP	Beaufort	16 June 1997	abundant	G.B. Mottesi
970616.2	<i>Fundulus diaphanus</i>	Mallard Creek	above confl. w/Pamlico River, GCSP	Beaufort	16 June 1997	1	G.B. Mottesi
970616.3	<i>Strongylura marina</i>	Pamlico River	near Ragged Pt. Tr. boardwalk, GCSP	Beaufort	16 June 1997	1	G.B. Mottesi
970616.3	<i>Micropterus salmoides</i>	Pamlico River	near Ragged Pt. Tr. boardwalk, GCSP	Beaufort	16 June 1997	1	G.B. Mottesi
970616.3	<i>Lucania parva</i>	Pamlico River	near Ragged Pt. Tr. boardwalk, GCSP	Beaufort	16 June 1997	6	G.B. Mottesi
970616.3	<i>Leiostomus xanthurus</i>	Pamlico River	near Ragged Pt. Tr. boardwalk, GCSP	Beaufort	16 June 1997	6	G.B. Mottesi
970616.3	<i>Menidia beryllina</i>	Pamlico River	near Ragged Pt. Tr. boardwalk, GCSP	Beaufort	16 June 1997	7	G.B. Mottesi
970616.4	<i>Gambusia holbrooki</i>	Flatty Creek	confl. w/Pamlico River, GCSP	Beaufort	16 June 1997	2	G.B. Mottesi
970616.4	<i>Lucania parva</i>	Flatty Creek	confl. w/Pamlico River, GCSP	Beaufort	16 June 1997	3	G.B. Mottesi
970616.4	<i>Fundulus diaphanus</i>	Flatty Creek	confl. w/Pamlico River, GCSP	Beaufort	16 June 1997	5	G.B. Mottesi

Table 2. Fish found in Goose Creek State Park and associated waterways (cont.)

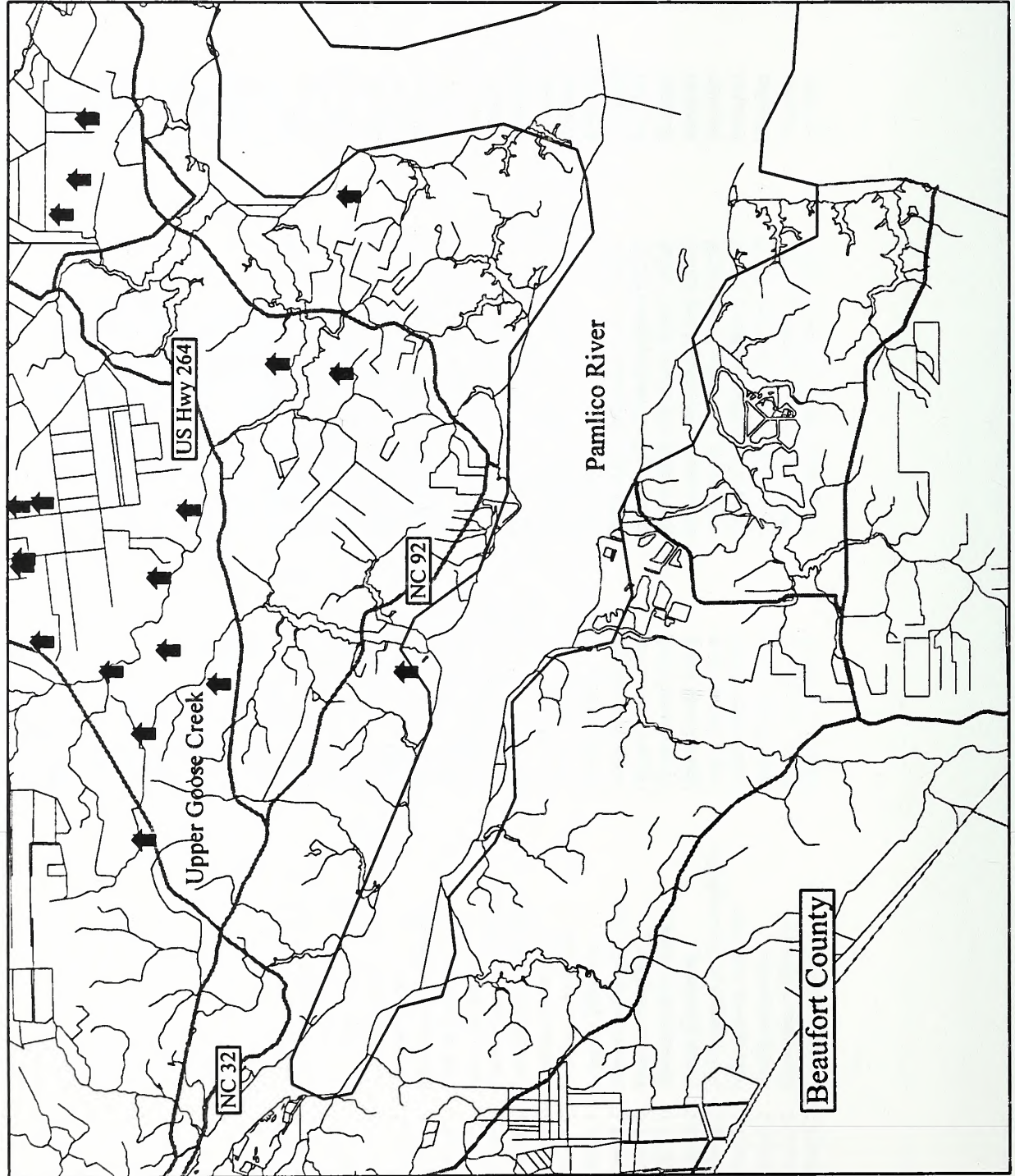
<u>Station No.</u>	<u>Scientific Name</u>	<u>Waterway</u>	<u>Common Locality</u>	<u>County</u>	<u>Date</u>	<u>No.</u>	<u>Identified By</u>
970616.4	<i>Enneacanthus gloriosus</i>	Flatty Creek	confl. w/Pamlico River, GCSP	Beaufort	16 June 1997	1	G.B. Mottesi
970616.4	<i>Micropterus salmoides</i>	Flatty Creek	confl. w/Pamlico River, GCSP	Beaufort	16 June 1997	2	G.B. Mottesi
970616.4	<i>Trinectes maculatus</i>	Flatty Creek	confl. w/Pamlico River, GCSP	Beaufort	16 June 1997	1	G.B. Mottesi
970616.4	<i>Lepomis microlophus</i>	Flatty Creek	confl. w/Pamlico River, GCSP	Beaufort	16 June 1997	1	G.B. Mottesi
970616.4	<i>Leiostomus xanthurus</i>	Flatty Creek	confl. w/Pamlico River, GCSP	Beaufort	16 June 1997	2	G.B. Mottesi
970616.4	<i>Menidia beryllina</i>	Flatty Creek	confl. w/Pamlico River, GCSP	Beaufort	16 June 1997	3	G.B. Mottesi
970616.5	<i>Menidia beryllina</i>	Upper Goose Creek	Dinah's Boat landing, GCSP	Beaufort	16 June 1997	7	G.B. Mottesi
970616.5	<i>Leiostomus xanthurus</i>	Upper Goose Creek	Dinah's boat landing, GCSP	Beaufort	16 June 1997	3	G.B. Mottesi
970616.5	<i>Fundulus diaphanus</i>	Upper Goose Creek	Dinah's Boat landing, GCSP	Beaufort	16 June 1997	11	G.B. Mottesi
970616.5	<i>Cyprinodon variegatus</i>	Upper Goose Creek	Dinah's Boat landing, GCSP	Beaufort	16 June 1997	2	G.B. Mottesi
970616.5	<i>Enneacanthus gloriosus</i>	Upper Goose Creek	Dinah's Boat landing, GCSP	Beaufort	16 June 1997	2	G.B. Mottesi
970616.5	<i>Lepomis gibbosus</i>	Upper Goose Creek	Dinah's Boat landing, GCSP	Beaufort	16 June 1997	6	G.B. Mottesi
970616.5	<i>Ameiurus natalis</i>	Upper Goose Creek	Dinah's Boat landing, GCSP	Beaufort	16 June 1997	9	G.B. Mottesi
970616.5	<i>Gambusia holbrooki</i>	Upper Goose Creek	Dinah's Boat landing, GCSP	Beaufort	16 June 1997	7	G.B. Mottesi
970616.5	<i>Lucania parva</i>	Upper Goose Creek	Dinah's Boat landing, GCSP	Beaufort	16 June 1997	2	G.B. Mottesi
970616.5	<i>Micropterus salmoides</i>	Upper Goose Creek	Dinah's Boat landing, GCSP	Beaufort	16 June 1997	4	G.B. Mottesi
970618.1	<i>Umbra pygmaea</i>	Mallard Creek	SR 1334	Beaufort	18 June 1997	1	G.B. Mottesi
970618.1	<i>Ameiurus natalis</i>	Mallard Creek	SR 1334	Beaufort	18 June 1997	1	G.B. Mottesi
970618.1	<i>Centrarchus macropterus</i>	Mallard Creek	SR 1334	Beaufort	18 June 1997	2	G.B. Mottesi
970618.1	<i>Enneacanthus gloriosus</i>	Mallard Creek	SR 1334	Beaufort	18 June 1997	1	G.B. Mottesi
970618.1	<i>Esox americanus</i>	Mallard Creek	SR 1334	Beaufort	18 June 1997	1	G.B. Mottesi
970618.1	<i>Gambusia holbrooki</i>	Mallard Creek	SR 1334	Beaufort	18 June 1997	1	G.B. Mottesi
970618.1	<i>Lepomis gibbosus</i>	Mallard Creek	SR 1334	Beaufort	18 June 1997	abundant	G.B. Mottesi
970618.2	<i>Enneacanthus gloriosus</i>	Upper Goose Creek	above confl. w/Pamlico River, GCSP	Beaufort	18 June 1997	5	G.B. Mottesi
970618.2	<i>Menidia beryllina</i>	Upper Goose Creek	above confl. w/Pamlico River, GCSP	Beaufort	18 June 1997	n/a	G.B. Mottesi
970618.2	<i>Enneacanthus obesus</i>	Upper Goose Creek	above confl. w/Pamlico River, GCSP	Beaufort	18 June 1997	n/a	G.B. Mottesi
970618.2	<i>Perca flavescens</i>	Upper Goose Creek	above confl. w/Pamlico River, GCSP	Beaufort	18 June 1997	n/a	G.B. Mottesi
970618.2	<i>Archosargus probatocephalus</i>	Upper Goose Creek	above confl. w/Pamlico River, GCSP	Beaufort	18 June 1997	2	G.B. Mottesi
970618.2	<i>Micropterus salmoides</i>	Upper Goose Creek	above confl. w/Pamlico River, GCSP	Beaufort	18 June 1997	n/a	G.B. Mottesi
970618.2	<i>Ameiurus natalis</i>	Upper Goose Creek	above confl. w/Pamlico River, GCSP	Beaufort	18 June 1997	n/a	G.B. Mottesi
970618.2	<i>Gambusia holbrooki</i>	Upper Goose Creek	above confl. w/Pamlico River, GCSP	Beaufort	18 June 1997	n/a	G.B. Mottesi
970618.2	<i>Lepomis gibbosus</i>	Upper Goose Creek	above confl. w/Pamlico River, GCSP	Beaufort	18 June 1997	n/a	G.B. Mottesi

Animal Facilities

The following map shows the animal facilities near and around the waterways associated with Goose Creek State Park. This information was acquired from the Water Quality Section, Division of Environmental Management, North Carolina Department of Environment, Health, and Natural Resources.

GOOSE CREEK STATE PARK

ANIMAL FACILITIES





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